Volume 554 10 May 2006

CONTENTS

Editorial: JFM at 50. S. H. Davis and T. J. Pedley *page* 1

The spreading and stability of a surfactant-laden drop on a prewetted substrate. O. E. Jensen and S. Naire 5

Influence of periodic wall roughness on the slip behaviour at liquid/solid interfaces: molecular-scale simulations versus continuum predictions. N. V. Priezjev and S. M. Troian 25

On the elasticity of an inertial liquid shock. A.-L. Biance, F. Chevy, C. Clanet, G. Lagubeau and D. Quéré 47

Multiscale modelling in the numerical computation of isothermal non-wetting. M. K. Smith and G. P. Neitzel 67

Particle–wave association on a fluid interface. S. Protière, A. Boudaoud and Y. Couder 85

On the bulk viscosity of suspensions. J. F. Brady, A. S. Khair and M. Swaroop 109

The stress system in a suspension of heavy particles: antisymmetric contribution. A. Prosperetti, Q. Zhang and K. Ichiki 125

Solidification of colloidal suspensions. S. S. L. Peppin, J. A. W. Elliott and M. G. Worster 147

On the dynamics of magnetically driven elastic filaments. M. Roper, R. Dreyfus, J. Baudry, M. Fermigier, J. Bibette and H. A. Stone 167

Transitional pathway to elastic turbulence in torsional, parallel-plate flow of a polymer solution. B. A. Schiamberg, L. T. Shereda, H. Hu and R. G. Larson 191

Large-deformation analysis of the elastic recoil of fibre layers in a Brinkman medium with application to the endothelial glycocalyx. Y. Han, S. Weinbaum, J. A. E. Spaan and H. Vink 217

Hydrodynamics of granular gases and granular gas mixtures. D. Serero, I. Goldhirsch, S. H. Noskowicz and M.-L. Tan 237

Raining into shallow water as a description of the collapse of a column of grains. E. Larrieu, L. Staron and E. J. Hinch 259

Meanders. G. Seminara 271

Gravity currents: a personal perspective. H. E. Huppert 299

The fluid dynamics of an underfloor air distribution system. Q. A. Liu and P. F. Linden 323

The quasi-geostrophic model for rapidly rotating spherical convection outside the tangent cylinder. N. Gillet and C. A. Jones 343

Nonlinear evolution of hydrodynamically unstable premixed flames. Y. Rastigejev and M. Matalon 371

Nonlinear global modes in hot jets. L. LESSHAFFT, P. HUERRE, P. SAGAUT and M. TERRACOL 393

The effects of solid boundaries on confined two-dimensional turbulence. G. J. F. VAN HEIJST, H. J. H. CLERCX and D. MOLENAAR 411

Statistical mechanics of two-dimensional turbulence. S. JUNG, P. J. MORRISON and H. L. SWINNEY 433

The length-scale distribution function of the distance between extremal points in passive scalar turbulence. L. WANG and N. PETERS 457

Finite-Reynolds-number effects in turbulence using logarithmic expansions. K. R. SREENIVASAN and A. BERSHADSKII 477

Mechanics of inhomogeneous turbulence and interfacial layers. J. C. R. HUNT, I. EAMES and J. WESTERWEEL 499

Large-scale and very-large-scale motions in turbulent pipe flow. M. GUALA, S. E. HOMMEMA and R. J. ADRIAN 521

INDEX TO VOLUME 554 543

INDEX

Adrian, R. J. *See* Guala, Hommema & Adrian

Baudry, J. *See* Roper, Dreyfus, Baudry, Fermigier, Bibette & Stone

Bershadskii, A. *See* Sreenivasan & Bershadskii

Biance, A.-L., Chevy, F., Clanet, C., Lagubeau, G. & Quéré, D. On the elasticity of an inertial liquid shock, 47–66

Bibette, J. *See* Roper, Dreyfus, Baudry, Fermigier, Bibette & Stone

Boudaoud, A. *See* Protière, Boudaoud & Couder

Brady, J. F., Khair, A. S. & Swaroop, M. On the bulk viscosity of suspensions, 109–123

Chevy, F. *See* Biance, Chevy, Clanet, Lagubeau & Quéré

Clanet, C. *See* Biance, Chevy, Clanet, Lagubeau & Quéré

Clercx, H. J. H. *See* van Heijst, Clercx & Molenaar

Couder, Y. *See* Protière, Boudaoud & Couder

Davis, S. H. & Pedley, T. J. Editorial: JFM at 50, 1–4

Dreyfus, R. *See* Roper, Dreyfus, Baudry, Fermigier, Bibette & Stone

Eames, I. *See* Hunt, Eames & Westerweel

Elliott, J. A. W. *See* Peppin, Elliott & Worster

Fermigier, M. *See* Roper, Dreyfus, Baudry, Fermigier, Bibette & Stone

Gillet, N. & Jones, C. A. The quasi-geostrophic model for rapidly rotating spherical convection outside the tangent cylinder, 343–369

Goldhirsch, I. *See* Serero, Goldhirsch, Noskowicz & Tan

Guala, M., Hommema, S. E. & Adrian, R. J. Large-scale and very-large-scale motions in turbulent pipe flow, 521–542

Han, Y., Weinbaum, S., Spaan, J. A. E. & Vink, H. Large-deformation analysis of the elastic recoil of fibre layers in a Brinkman medium with application to the endothelial glycocalyx, 217–235

van Heijst, G. J. F., Clercx, H. J. H. & Molenaar, D. The effects of solid boundaries on confined two-dimensional turbulence, 411–431

Hinch, E. J. *See* Larrieu, Staron & Hinch

Hommema, S. E. *See* Guala, Hommema & Adrian

Hu, H. *See* Schiamberg, Shereda, Hu & Larson

Huerre, P. *See* Lesshafft, Huerre, Sagaut & Terracol

Hunt, J. C. R., Eames, I. & Westerweel, J. Mechanics of inhomogeneous turbulence and interfacial layers, 499–519

Huppert, H. E. Gravity currents: a personal perspective, 299–322

Ichiki, K. *See* Prosperetti, Zhang & Ichiki

Jensen, O. E. & Naire, S. The spreading and stability of a surfactant-laden drop on a prewetted substrate, 5–24

Jones, C. A. *See* Gillet & Jones

Jung, S., Morrison, P. J. & Swinney, H. L. Statistical mechanics of two-dimensional turbulence, 433–456

Khair, A. S. *See* Brady, Khair & Swaroop

Lagubeau, G. *See* Biance, Chevy, Clanet, Lagubeau & Quéré

Larrieu, E., Staron, L. & Hinch, E. J. Raining into shallow water as a description of the collapse of a column of grains, 259–270

Larson, R. G. *See* Schiamberg, Shereda, Hu & Larson

Lesshafft, L., Huerre, P., Sagaut, P. & Terracol, M. Nonlinear global modes in hot jets, 393–409

Linden, P. F. *See* Liu & Linden

Liu, Q. A. & Linden, P. F. The fluid dynamics of an underfloor air distribution system, 323–341

Matalon, M. *See* Rastigejev & Matalon

Molenaar, D. *See* van Heijst, Clercx & Molenaar

Morrison, P. J. *See* Jung, Morrison & Swinney

Naire, S. *See* Jensen & Naire

Neitzel, G. P. *See* Smith & Neitzel

Noskowicz, S. H. *See* Serero, Goldhirsch, Noskowicz & Tan

Pedley, T. J. *See* Davis & Pedley

Peppin, S. S. L., Elliott, J. A. W. & Worster, M. G. Solidification of colloidal suspensions, 147–166

Peters, N. *See* Wang & Peters

Priezjev, N. V. & Troian, S. M. Influence of periodic wall roughness on the slip behaviour at liquid/solid interfaces: molecular-scale simulations versus continuum predictions, 25–46

Prosperetti, A., Zhang, Q. & Ichiki, K. The stress system in a suspension of heavy particles: antisymmetric contribution, 125–146

Protière, S., Boudaoud, A. & Couder, Y. Particle–wave association on a fluid interface, 85–108

Quéré, D. *See* Biance, Chevy, Clanet, Lagubeau & Quéré

Rastigejev, Y. & Matalon, M. Nonlinear evolution of hydrodynamically unstable premixed flames, 371–392

Roper, M., Dreyfus, R., Baudry, J., Fermigier, M., Bibette, J. & Stone, H. A. On the dynamics of magnetically driven elastic filaments, 167–190

Sagaut, P. *See* Lesshafft, Huerre, Sagaut & Terracol

Schiamberg, B. A., Shereda, L. T., Hu, H. & Larson, R. G. Transitional pathway to elastic turbulence in torsional, parallel-plate flow of a polymer solution, 191–216

Seminara, G. Meanders, 271–297

Serero, D., Goldhirsch, I., Noskowicz, S. H. & Tan, M.-L. Hydrodynamics of granular gases and granular gas mixtures, 237–258

Shereda, L. T. *See* Schiamberg, Shereda, Hu & Larson

Smith, M. K. & Neitzel, G. P. Multiscale modelling in the numerical computation of isothermal non-wetting, 67–83

Spaan, J. A. E. *See* Han, Weinbaum, Spaan & Vink

Sreenivasan, K. R. & Bershadskii, A. Finite-Reynolds-number effects in turbulence using logarithmic expansions, 477–498

Staron, L. *See* Larrieu, Staron & Hinch

Stone, H. A. *See* Roper, Dreyfus, Baudry, Fermigier, Bibette & Stone

Swaroop, M. *See* Brady, Khair & Swaroop

Swinney, H. L. *See* Jung, Morrison & Swinney

Tan, M.-L. *See* Serero, Goldhirsch, Noskowicz & Tan

Terracol, M. *See* Lesshafft, Huerre, Sagaut & Terracol

Troian, S. M. *See* Priezjev & Troian

Vink, H. *See* Han, Weinbaum, Spaan & Vink

Wang, L. & Peters, N. The length-scale distribution function of the distance between extremal points in passive scalar turbulence, 457–475

Weinbaum, S. *See* Han, Weinbaum, Spaan & Vink

Westerweel, J. *See* Hunt, Eames & Westerweel

Worster, M. G. *See* Peppin, Elliott & Worster

Zhang, Q. *See* Prosperetti, Zhang & Ichiki

S. H. Davis & T. J. Pedley	Editorial: JFM at 50	1
O. E. Jensen & S. Naire	The spreading and stability of a surfactant-laden drop on a prewetted substrate	5
N. V. Priezjev & S. M. Troian	Influence of periodic wall roughness on the slip behaviour at liquid/solid interfaces: molecular-scale simulations versus continuum predictions	25
A.-L. Biance, F. Chevy, C. Clanet, G. Lagubeau & D. Quéré	On the elasticity of an inertial liquid shock	47
M. K. Smith & G. P. Neitzel	Multiscale modelling in the numerical computation of isothermal non-wetting	67
S. Protière, A. Boudaoud & Y. Couder	Particle–wave association on a fluid interface	85
J. F. Brady, A. S. Khair & M. Swaroop	On the bulk viscosity of suspensions	109
A. Prosperetti, Q. Zhang & K. Ichiki	The stress system in a suspension of heavy particles: antisymmetric contribution	125
S. S. L. Peppin, J. A. W. Elliott & M. G. Worster	Solidification of colloidal suspensions	147
M. Roper, R. Dreyfus, J. Baudry, M. Fermigier, J. Bibette & H. A. Stone	On the dynamics of magnetically driven elastic filaments	167
B. A. Schiamberg, L. T. Shereda, H. Hu & R. G. Larson	Transitional pathway to elastic turbulence in torsional, parallel-plate flow of a polymer solution	191
Y. Han, S. Weinbaum, J. A. E. Spaan & H. Vink	Large-deformation analysis of the elastic recoil of fibre layers in a Brinkman medium with application to the endothelial glycocalyx	217
D. Serero, I. Goldhirsch, S. H. Noskowicz & M.-L. Tan	Hydrodynamics of granular gases and granular gas mixtures	237
E. Larrieu, L. Staron & E. J. Hinch	Raining into shallow water as a description of the collapse of a column of grains	259
G. Seminara	Meanders	271
H. E. Huppert	Gravity currents: a personal perspective	299
Q. A. Liu & P. F. Linden	The fluid dynamics of an underfloor air distribution system	323
N. Gillet & C. A. Jones	The quasi-geostrophic model for rapidly rotating spherical convection outside the tangent cylinder	343
Y. Rastigejev & M. Matalon	Nonlinear evolution of hydrodynamically unstable premixed flames	371
L. Lesshafft, P. Huerre, P. Sagaut & M. Terracol	Nonlinear global modes in hot jets	393

continued on inside backcover

The Journal of Fluid Mechanics now accepts submissions via Manuscript Central
Go to http://www.jfm.damtp.cam.ac.uk/ as an author

Cambridge Journals Online
For further information about this journal please
go to the journal web site at:
http://www.journals.cambridge.org/jid_flm

CAMBRIDGE
UNIVERSITY PRESS

continued from outside backcover

G. J. F. van Heijst, H. J. H. Clercx & D. Molenaar	The effects of solid boundaries on confined two-dimensional turbulence	411
S. Jung, P. J. Morrison & H. L. Swinney	Statistical mechanics of two-dimensional turbulence	433
L. Wang & N. Peters	The length-scale distribution function of the distance between extremal points in passive scalar turbulence	457
K. R. Sreenivasan & A. Bershadskii	Finite-Reynolds-number effects in turbulence using logarithmic expansions	477
J. C. R. Hunt, I. Eames & J. Westerweel	Mechanics of inhomogeneous turbulence and interfacial layers	499
M. Guala, S. E. Hommema & R. J. Adrian	Large-scale and very-large-scale motions in turbulent pipe flow	521
INDEX TO VOLUME 554		543